

CHONEMORPHA MACROPHYLLA AND ALLIED SPECIES.

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Introduction.

Although *Chonemorpha macrophylla* G. Don is the type of the genus as currently interpreted, it is a species whose limits are not yet clearly defined, with the result that more than one species are included under that specific name, and this holds good even after the exclusion of the Philippine and Javanese material that was previously referred here. It is true that Ridley, acting on Stapf's suggestions on this matter, had (in *Agric. Bull. Straits & Fed. Malay States* X, 1911, pp. 146-148) created two new specific epithets, *C. penangensis* and *C. Rheedei*, hoping to straighten out the matter. But, as he did not bring out fully the chief characters that distinguish the three species, his paper did not succeed in making matters much clearer, and moreover his paper with Stapf's suggestions being published in a periodical of purely agricultural and local interest, failed to attract the attention of horticulturists and systematists even to the fact that *C. macrophylla* as then interpreted was being regarded as a mixed species. It is not surprising therefore that the two *Supplements* to *Index Kewensis* for 1911-15 and 1916-20, published respectively in 1921 and 1926, were issued without including Ridley's two new species, their inclusion not appearing until 1929 when the *Supplement* for 1921-25 was issued and when presumably the compilers' attention was drawn to Ridley's paper through a reference made to it in Ridley's *Flora II*, 1923.

In the hope, therefore, that the circumscription of *C. macrophylla* G. Don may become clear, and that the separation of the species usually confused with it may be easier, I have prepared the *Key* and the *Enumeration* given below. This paper not being a complete revision of the genus, I limit myself to giving only those synonyms and references which I consider may be useful to interpret the species correctly. I have also described a new species *C. assamensis*, based on a specimen from Assam.

The species are so variable as regards the hairiness and size of the leaves that it is not easy to distinguish them on that character. The general outline of the leaves, the comparative size of the corolla and the hairiness, size and shape of the calyx are more stable characters and so advantage is taken of them in framing the key. The hairiness of the pistil is apparently a useful character in separating these species, and may form an important basis in subdividing such polymorphous species as

C. macrophylla and *C. mollis*; but the material at my disposal was so meagre in flowers that I did not feel myself justified to detach flowers from the authentic specimens for the purpose of dissection.

From the enumeration given below it will be evident that the success of my inquiry into the various species commonly referred to *C. macrophylla* is due principally to the rich material preserved in the herbarium of the Royal Botanic Gardens, Calcutta. My thanks are therefore due to the Director of that institution for the loan of the specimens.

Key to the Species.

A Leaves of the flowering shoots elliptic to obovate, usually more narrowed in the lower half than in the upper; base rounded, obtuse or slightly cordate. Calyx glabrescent or distinctly hairy, urceolulate or campanulate or crateriform; lobes triangular.

a: Calyx distinctly hairy or velvety, about 10–12 mm. long, slightly contracted at apex; lobes triangular, about $\frac{1}{3}$ the total length of the calyx. Corolla tube 3–3.5 cm. long; limb 5–6.5 cm. across.

1. *C. penangensis*.

aa: Calyx glabrous or glabrescent, not contracted at apex;

b: Calyx glabrescent, 9–12 mm. long, campanulate; lobes about $\frac{1}{3}$ the length of the calyx. Corolla tube 3–4.5 cm. long, contraction towards the base begins at the mouth of the calyx; limb 7–9 cm. across.

2. *C. macrophylla*.

bb: Calyx 4–5 mm. long, crateriform, glabrous; lobes about $\frac{1}{4}$ the length of the calyx. Corolla tube 3–4.5 cm. long, contraction towards the base begins much above the mouth of the calyx; limb 7–8 cm. across.

3. *C. assamensis*.

AA Leaves of the flowering shoots ovate, oval elliptic-oblong, or almost orbicular, usually more narrowed in the upper half than in the lower; base rounded, cordate. Calyx glabrescent, campanulate; lobes triangular or ovate.

a: Calyx 10–13 mm. long; lobes $\frac{1}{3}$ the length of calyx, triangular. Corolla tube 2–2.5 cm. long; limb 6–7 cm. across.

4. *C. mollis*.

aa: Calyx 7–10 mm. long; lobes ovate, gradually and arcuately narrowed towards the apex, overlapping at base, $\frac{1}{2}$ – $\frac{2}{3}$ the length of calyx. Corolla tube 2–2.5 cm. long; limb 7–9 cm. across.

5. *C. fragrans*.

Enumeration.

1. *C. assamensis* Furtado spec. nov.

A *C. macrophylla* G. Don, cui affinis, calycibus glaberrimis brevioribus, cupuliformibus; corollarum tubo supra (haud ad) calycum orificium dilatato; hæc species facile distinguenda.

A *C. fragrans* Alston calycum lobis triangularibus, ramulorum foliis floriferorum obovatis distat.

INDIA: Assam, loc. incert (collected by a native collector under the supervision of G. Mann, in May 1893. Holotype in the Calcutta Herbarium).

2. *Chonemorpha fragrans* (Moon) Alston in Ann. Roy. Bot. Gard. Perad. XI (1929) 203 excl. syn., et in Trimen Fl. Ceyl. VI (1931) 192 p.p.

Echites fragrans Moon Cat. (1821) 20. Type.

C. Rheedei Ridl. in Agric. Bull. S. & F.M.S. X (1911) 146. Syn. nov.

C. macrophylla G. Don sensu Thwaites, Enum. (1864) 194; Hook. f., Fl. Brit. Ind. III (1882) 661 p.p. ; Trim., Fl. Ceyl. III (1895) 138 quoad specimina zeylanica; Cooke, Fl. Pres. Bombay II (1904) 139 quoad descriptionem et specimina citata; Gamble, Fl. Pres. Madras V (1923) 818 quoad specimina Indiæ australis. Syn. nov.

Belutta-Kaka-Kodi Rheede, Hort. Malab. IX (1689) p. 7, tt. 5 & 6. (Type of *E. fragrans* Moon).

CEYLON: loc. incert. (Thwaites, C.P. 2467 in Calcutta herb).

CULTIVATED SPECIMENS: Singapore: Botanic Gardens (Ridley, in 1911, holotype of *C. Rheedei*).

3. *Chonemorpha macrophylla* [Roxb.] G. Don, Gen. Syst. Dichl. Pt. IV (1838) 76; DC., Prodr. VIII (1844) 430, p.p.; Miq., Fl. Ind. Bot. II (1856) 444 p.p.; Thwaites, Enum. (1864) 194 p.p.; Hook., f., Fl. Brit. Ind. III (1882) 661 p.p.; Trim., Fl. Ceyl. III (1895) 138 p.p. Hook.f. Bot. Mag. (1896) t. 7492. Gamble in King, Mat. Fl. Mal. Pen. IV (1907) 693 p.p.; Ridley in Journ. Roy. Asiat. Soc. Str. Br. 57 (1910) 68.

C. macrophylla var. *grandis* A.DC., Prodr. VIII (1844) 450. Syn. nov.

C. penangensis Ridl. in Agric. Bull. S. & F.M.S. X (1911) 147 quoad specimina perakensia, et Fl. Mal. Pen. II (1923) 360 p.p. Syn. nov.

Echites macrophylla Roxb. sp. nov., Hort. Beng. (1814) 20, nom. nud., et Fl. Ind. II (1824) 13 excl. syn. Type. [non *E. macrophylla* H.B.K., Nov. Gen. et. Spec. III (1819) 219].

E. grandis Wall. Cat 1658, nom. nud.

E. latifolia Wall. Cat. no. 1657 E, nom. nud.

INDIA: *N. W. Himalaya*, Dehra Dun (Mackinnon in Aug. 1897). *W. Duars*, Buxa (Gamble, 7698). *Prov. Incert.*, Teendaria (Gamble, 3223 B & C); loc. incert. (Falconer). *Assam and Sikkim*: Sillet (Wall. Cat. 1657A); Kom (Wall. Cat. 1658); Kumaon (leg.?, in 1871); Goyalpara (Wall. Cat. 1657E); Slik (Rebu, 873).

BURMA *Shan States*, loc. incert. (Allen, 2); Lashio alt 2,600 ft. (Lace, 5838).

ANDAMANS: (Prain's coll., 57; Parkinson, 619).

MALAY PENINSULA: *Perak*, Temengo (Ridley, 14271); Larut, alt. 300-500 ft. (Kunstler, 3636); Gopeng, alt. 300-500 ft. (Kunstler, 6,000).

CULTIVATED SPECIMENS: INDIA, Botanic Gardens, *Calcutta* (Wallich, 1657B; Lane, 11,270). MALAY PENINSULA: *Singapore*, Botanic Gardens (Furtado, Nov. 15, 1935). *Selangor*, Kuala Lumpur in Public Gardens (Nov. 27, 1932).

With the exception of those from the Malay Peninsula, all specimens cited above are from the Calcutta Herbarium. The species is variable as regards the breadth and glabrescence of the calyx.

4. *Chonemorpha mollis* Miq., Fl. Ind. Bot. II (1856) 444. *stat. nov.*

C. macrophylla G. Don *sensu* Vidal, Cat. Pl. Prov. Manila (1880) 36; Hook. f., Fl. Brit. Ind. III (1882) 661 p.p; Koorders, *Exkursionsfl. Jav.* III (1912) 77; Heyne, *Nutt. Plant. Nederl. Ind.* IV (1917) 85, et 2nd Ed. II (1927) 1291. *Syn. nov.*

C. Blancoi Merr., *Spec. Blancoanæ* (1918) 312, et *Enum. Philipp.* Pl. III (1923) 335. *Syn. nov.*

C. elliptica Merr. & Rolfe in *Philipp. Journ. Sci.* III (1908) 121. *Syn. nov.*

Tabernæmontana elliptica Blanco sp. nov. Fl. Filip. (1837) 115 (non *T. elliptica* Thunb., Fl. Jap. 1784, p. 111). *Syn. nov.*

JAVA. (Horsfield, duplicate of the Type, in Calcutta herb.).

CELEBES: Bonto Parang (Bünnemeijer, 10572).

PHILIPPINES: *Luzon*, Borhoso (Ahern, 1141; Ramos, 1065). *Palawan*, Taytay (Merrill, 9249).

This species, like *C. macrophylla*, is very variable as regards the pubescence and the size of leaves and calyces. A further inquiry into the hairiness of the pistil and the corolla tube may be desirable to understand the exact significance of the several variations.

5. *Chonemorpha penangensis* Ridley in *Agric. Bull. S. & F.M.S.* X (1911) 147 excl. specimina perakensia, et Fl. Malay Pen. II (1923) 360 p.p.

C. macrophylla G. Don *sensu* Hook. f., Fl. Brit. Ind. III (1882) 661 quoad specimina malaccensia; Gamble in King, Materials IV (1907) 693 p.p.

MALAY PENINSULA: *Penang*, Balek Pulau (Ridley, 9441); Wang Seraya, alt. 500 feet (Curtis, 832); Ayer Etam (Haniff, in April 1916, vern. name: Gërip Merah), *Malacca*, Brisu (Derry, 543, vern. name: Akar Gërip-Gërip Merah.; loc. incert (Maingay 1074 = Kew n. 1837, in Calcutta herb.)). *Negri Sembilan*, Tampin Hill (Burkill, 556). *Selangor*, Kepong (Symington, 20148; Pawanche, 14673, vern. name Akar Gërit Tembaga.).

